

PARS VACUUM INDUSTRIES

PUMPS BLOWERS COMPRESSORS



■ **NEW ROTARY LIQUID RING PUMPS** ■

Company Introduction and History

Founded in 1986, Pars Vacuum Industries started its operation in design and manufacturing of Rotary Liquid Ring vacuum pumps, blowers and compressors.

Pars Vacuum Industries is the first and largest manufacturer of liquid ring pumps in Iran. After completing the design and development of the 2nd generation of liquid ring pumps in sizes 40 to 800 m³/hr and great success in the industry and full satisfaction of our customers, we designed and developed the 2nd generation of larger sizes from 1000 to 5000 m³/hr in order to compete for more efficiency and greater performance.



Advantages of the New Generation of Liquid Ring Pumps

Lower power consumption compared to old design

Higher pump efficiency compared to old design

Increased vacuum pressure from 100 mbar A to 60 mbar A

Increased over pressure in case of compressors
(up to 2.2 barg)

Port plates with valves and 2 stage action

Options for sealing – mechanical seal or stuffing box 2

Stainless Steel cladding for routine pumps for
corrosion resistance



T1102 - T1602



2B4200 - 2B5000

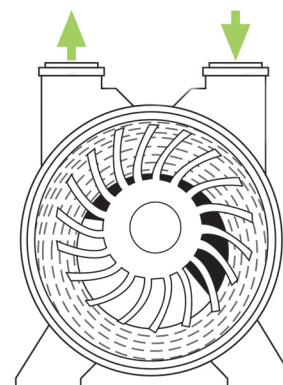


Operating Mechanism

The vaned impeller rotates around the pump axis of rotation in an eccentric fashion. The liquid (usually water) is fed into the pump cylinder and, by centrifugal acceleration, forms a moving cylindrical ring against the casing.

The liquid ring creates seals between impeller vanes and the two sides of the cylinder. The eccentric rotation of the impeller causes cyclic variations of the volume enclosed by the impeller vanes and the ring. Air or gas/vapor is input to the pump via the inlet port. It is trapped in the compression chambers formed between the vanes and the liquid ring. Due to the reduction in the volume of these compression chambers which is a result of the eccentric rotation of the impeller, air or gas/vapor is compressed and discharged through the outlet port of the pump.

Cooling of the pump is done by the liquid, normally water.



Applications in the Industry

Steel & Mining

- Casting in vacuum, process gas conveyance, pneumatic conveying of particles, vacuum generation in filtration and concentration



Oil, Gas and Petrochemical

- Filtration, vacuum generation and deaeration in different processes, replacement for steam ejectors
- Vapor recovery of components with 2 phase (liquid/gas) characteristics
- Vapor collection in furfural oil generation process



Chemical

- Evacuation of gas/vapor mixes
- For drying wet solids
- Vacuum generation in reactors
- Deaeration of water
- Vacuum filtration
- Eliminating air bubbles inside material

Sugar

- Vacuum generation in condensers, evaporation and filtration
- CO₂ gas conveyance from lime kiln to saturation tank
- Solid layer separation in vacuum filters, pneumatic conveying of raw sugar and lime



Paper

- De-watering and drying of pulp

Performance and Operation Range of Liquid Ring Vacuum Pumps

Model	Speed (rpm)	Capacity (m³/h)				Motor Power (kW)	Max Absorbed Power (kW)
		Pressure (mbar A)					
		60	160	400	800		
PVI T1102	970	700	1000	1060	1050	30	29
	1100	870	1160	1200	1170	37	35
	1170	920	1220	1270	1250	45	37
PVI T1602	970	1150	1550	1610	1535	45	44
	1100	1200	1790	1810	1720	55	54
	1170	1250	1880	1920	1820	75	58
PVI 2B4200	600	3000	3100	3200	3100	75	65
	670	3450	3550	3600	3500	90	82
	750	3740	3900	4000	3900	110	95
	800	3920	4100	4200	4130	132	118
PVI 2B5000	600	2680	3520	3720	3750	75	73
	670	2880	3720	4080	4150	90	87
	750	3100	3940	4450	4650	110	105
	800	3440	4280	4750	5000	132	122

The above figures are based on barometric pressure of 1013 mbar A, ambient temperature of 20 °C and water as service liquid with 15 °C with tolerance of ±5%

In case of use as compressor, the differential pressure can reach up to 2.2 barg. In order to create higher differential pressures, please consult Pars Vacuum Industries.

In case of use with ejectors in the inlet as a hybrid system, the vacuum pressure can reach down to 4 mbar A.

Fabrication of pumps in different alloys and anti-corrosion material is possible upon request.



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